REMARKS

The paragraph beginning at column 5, line 11, has been amended to correct "in" to "and". The paragraph beginning at column 8, line 40, has been amended to correct "SiO" to "Cr". This correction is clearly supported by the other text in this paragraph and Table 4 to which this paragraph refers. The paragraph beginning at column 10, line 53 was amended to correct "plastics" to "plastic".

Claims 1-2 and 5-26 are pending and claims 3 and 4 have been cancelled.

Claims 5, 15, 25, and 26 have been amended as shown in the attached "Version With Markings to Show Changes." More particularly, claims 5, 15, 25, and 26 have been amended to specifically include "transparent plastic film" as part of the Markush group recited in subparagraph (a) of each claim. Support for these amendments is found in the specification at column 10, lines 66-67. Claims 5, 15, 25, and 26 have also been amended to clarify that the first and second optical coatings claimed in each of the claims is a "thin film-based optical coating". Support for these amendments is found throughout the description of the present application.

Subparagraph (d) of claims 5 and 25 has been split into subparagraphs (d) and (e) in the amended claims. In the amended claims, subparagraph (d) now clarifies that it is the "light reflecting from the first and second reflecting areas that cooperates to define a predetermined pattern" that is visible. Subparagraph (e) of amended claims 5 and 25 have been added to further clarify that in the transparent construction of claim 5 and the method of claim 25, "the first optical coating, second optical coating, and substrate are selected so that the optical transmittance characteristics of the transparent construction through the first reflecting area and the second reflecting area are substantially the same, thereby making the pattern substantially visually imperceptible when the transparent construction is viewed from the back side of the substrate."

The amendments to subparagraphs (d) and (e) of claims 5 and 25 are supported, for example, by the specification at column 3, line 62 through column 4, line 11, and the examples described in connection with Tables 1 through 4.

In addition to the amendments noted above, claims 15 and 26 have also been amended to clarify that the first thin film-based optical coating comprises a first metal thin film and one optical thin film overlying the first metal thin film and that the second thin film-based optical coating comprises at least a second metal thin film. The inclusion of metal thin films in the first and second optical coatings, however, was already implicitly required by the claims because subparagraph (e) of both of these claims required the first and second optical coatings to have substantially the same optical transmittance characteristics. The only way such balancing may occur within the optical coatings themselves is through the use of metal layers.

Subparagraph (e) of these claims have been amended to clarify that the pattern is imperceptible when "the transparent construction is viewed from the back side of the substrate." This was also implicit in the prior language of the claims, but has now been made explicit for added clarity. Thus, it is submitted that the amendments to subparagraphs (d) and (e) of claims 15 and 26 do not limit the claims beyond their original scope.

The various objections and rejections raised in the December 28, 2001 Office Action are now addressed in order below.

The 37 C.F.R. § 1.172(a) Objection

The application was objected to under 37 CFR 1.172(a) on the basis that the assignee, JAX HOLDINGS, INC. ("JAX") has not established its ownership interest. JAX owns the entire right, title and interest in the present reissue application based on the following chain of title:

(a) The inventors of the present invention, namely Domenico Orzi and Ettienne Theron, assigned their entire right, title, and interest in U.S. Patent No. 5,731,898 to Domenico Orzi and Guido Orzi in an assignment dated March 20, 1995, each thereby holding an undivided 50 percent interest. This assignment was recorded with the United States Patent and Trademark Office on April 6, 1995 at reel 7431, frame 0042 through 0044 against U.S. Patent Application Serial No. 08/417,983.

(b) On or about September 12, 1998, Guido Orzi, from his undivided 50 percent interest, assigned to Roberto Lenzi a 15 percent undivided interest in U.S. Patent No. 5,731,898. This assignment was memorialized in an Assignment document dated June 26, 2001 that was recorded with the United States Patent and Trademark Office on July 5, 2001 at reel 11969, frame 0821 through 0831 against the present reissue application and on July 12, 2001 at Reel 011979, Frame 0491 through 0501 against U.S. Patent No. 5,731,898.

(c) Domenico Orzi, Guido Orzi, and Roberto Lenzi assigned their entire right, title, and interest in U.S. Patent No. 5,731,898 to JAX in an assignment dated June 26, 2001. This assignment was recorded with the United States Patent and Trademark Office on July 5, 2001 at Reel 11969, Frame 0605 through 0620 against the present reissue application and on July 12, 2001 at Reel 012252, Frame 0575 through 0590 against U.S. Patent No. 5,731,898.

Based upon the chain of title cited above, JAX has established its ownership of the present reissue application and U.S. Patent No. 5,731,898. Furthermore, as required by 37 C.F.R. 1.72(a), Jax established its ownership interest by filing a Statement Under 37 C.F.R.

3.73(b) with the Transmittal of Missing Parts filed July 5, 2001. A copy of the 37 C.F.R. 3.73(b) Statement submitted in response to the Notice of Missing Parts is enclosed herewith for the Examiner's review.

In view of the foregoing, reconsideration and withdrawal of the objection under 37 C.F.R. 1.72(a) is respectfully requested.

The 35 U.S.C. § 112, ¶ 1, Rejections

Claim 4 stands rejected under 35 U.S.C. § 112, first paragraph, as allegedly failing to adequately teach that "the transmission of the first waveband through the first area is 50% greater than in the second area and the transmission of the second waveband through the second area is 50% greater than in the first area." Applicant respectfully notes that claim 4 does not claim the above feature as recited in paragraph 6 of the December 28, 2001 Office Action and thus would have no need to teach such a feature. However, as claim 4 has been cancelled, the rejection of claim 4 is moot and should be withdrawn.

Claims 5-8, 15-18, 25, and 26 were rejected under 35 U.S.C. § 112, first paragraph, on the basis that the specification allegedly fails to adequately teach how each element claimed as the transparent substrate is actually employed as the transparent substrate. Applicants respectfully traverse.

Based on the teachings in the specification, one skilled in the art of thin films would readily understand how to deposit thin films to form the claimed filter arrangements on each type of disclosed and claimed substrate. In particular, those skilled in the art would recognize that they could use one or more of the processes disclosed in the specification (e.g., vapor deposition, photo-lithography, dipping, spraying, or sputtering) to form the claimed filter arrangements on the disclosed substrates. Furthermore, one skilled in the art could accomplish the same without undue

experimentation. Indeed, the specification makes clear that processes described at column 8, lines 27 through 65, for making the filter arrangements described in Table 4 or the process described at column 9, line 42 through column 10, line 12 can be used in connection with any of the substrates disclosed at column 10, lines 53 through 67. Thus, the specification of the present application does reasonably convey to those of ordinary skill in the art that the inventors were in possession of the invention claimed in claims 5-8, 15-18, 25 and 26 at the time the application was filed. Moreover, because one skilled in the art could practice the invention without undue experimentation employing any of the recited substrates based on the teachings in the specification, the rejected claims are also fully enabled.

Claims 5, 15, 25, and 26 were rejected under 35 U.S.C. 112, first paragraph, on the basis that the claims allegedly fail to enable the characteristics claimed for a transparent construction. The Office Action notes that the metallic layers are essential elements for balancing light transmission and reflection so that a pattern is perceptible from one side of the transparent construction and imperceptible from the opposite side of the transparent construction. However, the specification includes alternative methods of balancing light transmission while generating a difference in reflection. For example, in Fig. 3A and the accompanying description starting at column 4, line 34, a multi-layer dielectric stack is illustrated that may be used to form a transparent construction defining a pattern that is visibly perceptible when viewed from the front side and imperceptible when viewed from the back side. Because the reflectances and transmittances of such a stack are substantially the same from both sides of the stack, color balance "has to be accomplished by some means of filtering in the substrate." (See column 4, lines 50-51). Thus, an optical filter arrangement may be constructed without metallic layers as claimed in claims 5 and 25.

Such must be claimed

This being said, as noted above with respect to claims 15 and 26, each of these claims require a metal thin film in the first and second optical coatings.

Claims 9 and 19 were rejected under 35 U.S.C. 112, first paragraph, on the basis that the specification fails to adequately teach how the pattern of the filter element could be "devices". The term "devices" in the claim is not used in the sense of a mechanical device. Rather, the term "devices" is used consistently with its other accepted definitions, namely to refer, for example, to "a representation or design used especially as a heraldic charge or emblem" or "a motto or slogan." See Random House Webster's College Dictionary, at 363 definitions 7 and 8 (1998) (copy attached). Thus, "devices", as used in the specification and claims, constitute one type of pattern that may be visibly perceptible from the front side of the claimed transparent constructions according to the present invention.

In view of the foregoing reconsideration and withdrawal of the rejections of claims 4, 5-14, 15-26 under 35 U.S.C. § 112, first paragraph, is respectfully requested.

The 35 U.S.C. § 112, Second Paragraph Rejections

Claim 3 has been cancelled accordingly the rejection of this claim under 35 U.S.C. § 112, second paragraph, is now moot.

Claims 5-26 were rejected under 35 U.S.C. § 112, second paragraph, on the basis that the elements recited in the Markush group of independent claims 5, 15, 25, and 26 are allegedly not equivalent to each other, thus rendering the scope of the claims unclear. The elements recited in a Markush group are required to possess at least one substantial property in common, which is responsible for their functioning in the claimed relationship. See MPEP 2173.05(h). The relationship must either be disclosed in the specification or be clear from the nature of the elements or from the prior art that all the elements possess the property. Each recited element in the Markush

group of claims 5, 15, 25, and 26 is typically formed from a transparent material. In addition, when each recited element is employed for its intended purposes, each is frequently viewed from both sides. Furthermore, as disclosed in the specification each of the recited elements may be used as the substrate in the claimed transparent constructions. Thus, the recited elements may all be employed as a transparent substrate for a stack of thin films to form a transparent construction according to the present invention.

Claims 9 and 19 were rejected under 35 U.S.C. § 112, second paragraph, on the basis that the elements recited in the Markush group are not equivalent to each other, thus rendering the scope of the claims unclear. Each recited element in the Markush group of claims 9 and 19, therefore, represents a visible and distinguishable pattern that may be reproduced in the transparent constructions according to the present invention. Thus, each of the recited elements shares a common feature that is essential to the functioning of the transparent constructions of the present invention.

In view of the foregoing reconsideration and withdrawal of the rejection of claims 5-26 under 35 U.S.C. § 112, first paragraph, is respectfully requested.

The 35 U.S.C. § 103(a) Rejection

Claims 1-26 were rejected under 35 U.S.C. 103(a) for allegedly being obvious over U.S. Patent No. 4,715,702 to Dillon in view of U.S. Patent No. 3,679,291 to Apfel.

Claim 1 of the present invention comprises an optical filter arrangement having first and second reflecting areas on a substrate defined by first and second reflecting layers, respectively. The first reflecting area reflects at least a first waveband of light in the visible spectrum and the second reflecting area reflects at least a second waveband of light in the visible spectrum. The first reflecting area comprises at least a first metallic thin film layer overlying the substrate and at least a

first optical thin film overlying the first metallic thin film layer. The thickness of the first optical thin film determines the particular waveband of light reflected by the first reflecting area. The second reflecting area comprises at least a second metallic thin film layer. The first and second metallic layers have different thicknesses to help balance light transmitted through the first and second reflecting areas of the optical filter arrangement. Thus, the distinction between the first and second reflecting areas is visually perceptible from the reflecting side of the optical filter arrangement and substantially visually imperceptible when the filter arrangement is viewed from the opposite side.

Dillon discloses a transparent substrate upon which a pattern is visible from a first side of the substrate but imperceptible from the second side of the substrate. The pattern is formed by overlying the substrate (not shown in Fig. 4) with a negative element (28 of Fig. 4), a reflective element (27), and a positive element (26). Dillon teaches that the positive element includes a first area (29) having a first color and a second area (31) having a second color, the combination of the two areas forming a multi-colored pattern. The negative element includes identically formed first and second areas (32 and 33, respectively), however, the negative element is a color negative representation of the positive element. Light passing through the first area of the positive element and the first area of the negative element passes through identical colored areas, but in a different order, as light passing through the second area of the positive element and the second area of the negative element (see column 4, lines 1 – 5). Thus, color balance is achieved for light transmitted through the structure. Dillon also teaches that the reflective element may be a metallic thin film of uniform thickness that reflects light passing through the positive element to make the pattern visible from the first side of the substrate. (See, for example, the description of reflective element 18 shown in Figs. 1-3 of Dillon and described at column 3, lines 33-42.)

In view of the foregoing, Dillon clearly fails to teach or suggest a number of aspects of the optical filter arrangement of claim 1. First, Dillon fails to teach that the metallic thin film of its reflective element has a thickness in the first area of the pattern that is different from the thickness in the second area of the pattern. Second, Dillon fails to teach a first reflecting layer that includes a first reflecting surface defined by the first metallic film, in conjunction with at least a first optical thin film overlying the first reflecting surface, wherein the thickness of the first optical thin film determines the waveband or color of light being reflected off the first reflecting area. Thus, elements of the optical filter arrangement that are present in claim 1 are not taught or suggested in the disclosure of Dillon. These elements are also not found in Apfel.

Further, neither Dillon nor Apfel provides any motivation to combine the respective teachings of these references. Dillon teaches that negative and positive acting overlay color proofing film may be used as the positive or negative element, respectively. Use of such film implies that the colored pattern is formed by light absorption in the positive element and that the color balancing is achieved by light absorption in the negative element. While Dillon teaches that the reflective layer may be a metallic thin film, Dillon does not teach that the colored areas of the positive and negative elements may be formed using optical thin films as taught in Apfel. As disclosed in Apfel and in the present application, thin films create color through constructive and destructive interference of light, a process of creating color that is wholly different from the absorption technique taught in Dillon. Indeed, such an approach would be directly contrary to the simplistic approach Dillon teaches to achieve color balancing by ensuring that all light is passed through two absorption filters of the same color (e.g., red and blue) regardless of where the light passes through the sunglass lens.

Apfel, on the other hand, is not concerned with creating a filter arrangement that has multiple reflecting areas that reflect different wavebands of light, yet have substantially similar transmission

characteristics. Thus, Apfel does not even recognize, much less address, the problem, which the filter arrangements of claim 1 address and solve.

For the above-stated reasons, therefore, the teachings of Dillon are not properly combined with the teachings of Apfel, and such a combination, even if considered, does not disclose all the limitations of claim 1. The claimed matter of claim 1 thus represents a non-obvious invention over Dillon in view of Apfel. Dependent claim 2 also represents a non-obvious inventions over the cited art because of its dependency on claim 1.

Claim 5 of the present application claims a transparent construction that includes a reflective pattern. The construction comprises a transparent substrate, a first partially reflective thin-film based optical coating disposed on a first portion of the front surface of the substrate, and a second partially reflective thin film-based optical coating disposed on a second portion of the front surface of the substrate. Each optical coating comprises at least one optical thin film, and each reflects a waveband of light in the visible spectrum to define a pattern that is visibly perceptible from the front side of the substrate. The first optical coating, second optical coating and substrate are selected so that the optical transmittance characteristics of the transparent construction through the first reflecting area and the second reflecting area are substantially the same. As a result, the pattern is substantially visually imperceptible when the transparent construction is viewed from the backside of the substrate.

Dillon does not teach or suggest defining a first reflective area and a second reflective area on a substrate by disposing on first and second portions of the front surface of the substrate first and second thin film-based optical coatings, respectively. Nor does Dillon teach or suggest how to select the substrate and first and second thin film-based coatings so that the transparent construction will have substantially the same optical transmittance characteristics through the first and second

reflecting areas, thereby making the pattern substantially visually imperceptible when the transparent construction is viewed from the back side of the substrate.

Further, as discussed above in association with claim 1, Dillon does not provide any motivation to combine its teachings with that of Apfel. And, as noted above, Apfel, is not concerned with creating thin film filter arrangements that have multiple reflecting areas that reflect different wavebands of light, yet have substantially similar transmission characteristics. Thus, Apfel does not even recognize, much less address the problem that the transparent construction of claim 5 addresses and solves. The claimed matter of claim 5 thus represents a non-obvious invention over Dillon in view of Apfel. Dependent claims 6 – 14, because of their dependency on claim 5, also represent non-obvious inventions over the cited art.

Claim 15 of the present application claims a transparent construction that includes a reflective pattern. The construction comprises a transparent substrate, a first partially reflective, partially transmissive thin film-based optical coating disposed on a first portion of the front surface of the substrate, and a second partially reflective, partially transmissive thin film-based optical coating disposed on a second portion of the front surface of the substrate. The first thin film-based optical coating comprises at least a first metal thin film and one optical thin film overlying the first metal thin film. The second thin film-based optical coating comprises at least a second metal thin film. Each of the thin film-based optical coatings reflects a waveband of light in the visible spectrum. The light reflecting from the first and second thin film-based optical coatings defines a pattern that is visibly perceptible from the front side of the substrate. However, the first and second optical coatings are configured to have substantially the same optical transmittance characteristics such that the pattern is substantially visually imperceptible when the transparent construction is viewed from the backside of the substrate.

As discussed in connection with claim 5, Dillon does not teach or suggest defining a first reflective area and a second reflective area on a substrate by disposing on first and second portions of the front surface of the substrate first and second thin film-based optical coatings, respectively. Dillon also fails to teach a first thin film-based optical coating that comprises at least a first metal thin film and one optical thin film overlying the first metal thin film. Nor does Dillon teach or suggest how to adapt the first and second thin film-based coatings to have substantially the same optical transmittance characteristics so that the pattern is substantially visually imperceptible when the transparent construction is viewed from the back side of the substrate.

Further, as discussed above in association with claims 1 and 5, Dillon does not provide any motivation to combine its teachings with that of Apfel. And, as noted above, Apfel, is not concerned with creating thin film filter arrangements that have multiple reflecting areas that reflect different wavebands of light, yet have substantially similar transmission characteristics. Thus, Apfel does not even recognize, much less address the problem that the transparent construction of claim 15 addresses and solves. The claimed matter of claim 15 thus represents a non-obvious invention over Dillon in view of Apfel. Because of their dependency on claim 15, dependent claims 16 – 24 also represent non-obvious inventions over the cited art.

Claim 25 of the present application claims a method of forming a transparent construction including a reflective pattern that corresponds to the transparent construction of claim 5. The claimed method of claim 25 thus represents a non-obvious invention over Dillon in view of Apfel for the same reasons noted in connection with claim 5.

Claim 26 of the present application claims a method of forming a transparent construction including a reflective pattern that corresponds to the transparent construction of claim 15. The

claimed method of claim 26 thus represents a non-obvious invention over Dillon in view of Apfel for the reasons set forth in connection with claim 15.

The 35 U.S.C. § 251 Rejection

Claims 1-26 were rejected under 35 U.S.C. 251 on the basis that claim 3 presented an improper recapture of previously surrendered subject matter. Applicant has canceled claim 3 and thus requests that this rejection be withdrawn.

CONCLUSION

Based upon the above, applicant believes the claims, including dependent claims 2-4, 6-14, and 16-24, are in appropriate form for acceptance. Reconsideration and allowance are, therefore, earnestly solicited.

Respectfully submitted,

LYON & LYON LLP

Dated: July 14, 2002 By: _____

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

3. (Canceled)

4. (Canceled)

5. (Amended) A transparent construction including a reflective pattern thereon, the construction comprising:

a. a transparent substrate having a front surface and a back surface, wherein the substrate is selected from the group consisting of (i) windscreens, (ii) windows of a land, sea or air transport vehicle, (iii) visors (iv) lenses, (v) architectural glass, (vi) transparent plastic film, (vii) skylights, and [(vii)] (viii) sun-roofs;

b. a first partially reflective thin film-based optical coating disposed on a first portion of the front surface of the substrate so as to define a first reflecting area, the first optical coating comprising at least one optical thin film, and the first optical coating reflecting at least a first waveband of light in the visible spectrum from light incident on the first optical coating from the front side of the substrate; and

c. a second partially reflective thin film-based optical coating disposed on a second portion of the front surface of the substrate so as to define a second reflecting area, the second optical coating comprising at least one optical thin film, and the second optical coating reflecting at least a second waveband of light in the visible spectrum from light incident on the second optical coating from the front side of the substrate; wherein

d. light reflecting from the first and second reflecting areas cooperates to define a predetermined pattern which is visibly perceptible when viewed from the front side of the substrate; and wherein

e. the first optical coating, second optical coating and substrate are selected so that the optical transmittance characteristics of the transparent construction through the first reflecting area and the second reflecting area are substantially the same, thereby making the pattern [and] substantially visually imperceptible when the transparent construction is viewed [through]from the back side of the substrate.

15. (Amended) A transparent construction including a reflective pattern thereon, the construction comprising:

a. a transparent substrate having a front surface and a back surface, wherein the substrate is selected from the group consisting of (i) windscreens, (ii) windows, (iii) visors (iv) lenses, (v) architectural glass, (vi) transparent plastic film, (vii) skylights, and [(vii)] (viii) sun-roofs;

b. a first partially reflective, partially transmissive thin film-based optical coating disposed on a first portion of the front surface of the substrate so as to define a first reflecting area, the first optical coating comprising at least a first metal thin film and one optical thin film overlying the first metal thin film, and the first optical coating reflecting at least a first waveband of light in the visible spectrum from light incident on the first optical coating from the front side of the substrate; and

c. a second partially reflective, partially transmissive thin film-based optical coating disposed on a second portion of the front surface of the substrate so as to define a second reflecting area, the second optical coating comprising at least [one optical]a second metal thin film, and the second optical coating reflecting at least a second waveband of light in the visible spectrum from light incident on the second optical coating from the front side of the substrate; wherein

d. light reflecting from the first and second reflecting areas creates a predetermined pattern which is visibly perceptible when viewed from the front side of the substrate; and wherein

e. the first optical coating and the second optical coating have substantially the same optical transmittance characteristics so that the pattern is substantially visually imperceptible when the transparent construction is viewed [through]from the back side of the substrate.

25. (Amended) A method of forming a transparent construction including a reflective pattern thereon, the method comprising:

a. selecting a transparent substrate having a front surface and a back surface, wherein the substrate is selected from the group consisting of (i) windscreens, (ii) windows of a land, sea or air transport vehicle, (iii) visors (iv) lenses, (v) architectural glass, (vi) transparent plastic film, (vii) skylights, and [(vii)] (viii) sun-roofs;

b. applying a first partially reflective thin film-based optical coating on a first portion of the front surface of the substrate so as to define a first reflecting area, the first optical coating comprising at least one optical thin film, and the first optical coating reflecting at least a first waveband of light in the visible spectrum from light incident on the first optical coating from the front side of the substrate; and

c. applying a second partially reflective thin film-based optical coating on a second portion of the front surface of the substrate so as to define a second reflecting area, the second optical coating comprising at least one optical thin film, and the second optical coating reflecting at least a second waveband of light in the visible spectrum from light incident on the second optical coating from the front side of the substrate; wherein

d. light reflecting from the first and second reflecting areas cooperates to define a predetermined pattern which is visibly perceptible when viewed from the front side of the substrate; and wherein

e. the first optical coating, second optical coating and substrate are selected so that the optical transmittance characteristics of the transparent construction through the first reflecting area and the second reflecting area are substantially the same, thereby making the pattern [and] substantially visually imperceptible when the transparent construction is viewed [through]from the back side of the substrate.

26. (Amended) A method of forming a transparent construction including a reflective pattern thereon, the method comprising:

a. selecting a transparent substrate having a front surface and a back surface, wherein the substrate is selected from the group consisting of (i) windscreens, (ii) windows, (iii) visors (iv) lenses, (v) architectural glass, (vi) transparent plastic film, (vii) skylights, and [(vii)] (viii) sun-roofs;

b. applying a first partially reflective, partially transmissive thin film-based optical coating on a first portion of the front surface of the substrate so as to define a first reflecting area, the first optical coating comprising at least a first metal thin film and one optical thin film overlying the first metal thin film, and the first optical coating reflecting at least a first waveband of light in the visible spectrum from light incident on the first optical coating from the front side of the substrate; and

c. applying a second partially reflective, partially transmissive thin film-based optical coating on a second portion of the front surface of the substrate so as to define a second reflecting area, the second optical coating comprising at least [one optical]a second metal thin film, and the

second optical coating reflecting at least a second waveband of light in the visible spectrum from light incident on the second optical coating from the front side of the substrate; wherein

d. light reflecting from the first and second reflecting areas creates a predetermined pattern which is visibly perceptible when viewed from the front side of the substrate; and wherein

e. the first optical coating and the second optical coating have substantially the same optical transmittance characteristics so that the pattern is substantially visually imperceptible when the transparent construction is viewed [through] from the back side of the substrate.